PROJECT facts

U.S. DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY

Petroleum Exploration and Production

01/2005

INDENTIFICATION OF NAVAL TECHNOLOGIES TO THE OFFSHORE ENERGY INDUSTRY

PARTNERS

Houston Advanced Research Center
Houston, TX

NAVSEA-Cardrock
West Bethesda, MD

MAIN SITE

Houston Advanced Research Center
Houston, TX

Background

The overall objective of the project was to establish a methodology that identifies potential offshore energy industry applicable Navy technology. The secondary objective was to identify examples of currently available Navy technologies related to the offshore energy industry. Emphasis was given to technologies that have value to the Gulf of Mexico offshore and supporting maritime operations. Technologies identified should complement other technologies being developed by DOE and could improve domestic oil and gas supply.

The Houston Advanced Research Center (HARC) was asked to analyze and catalog the patents based on the level of development and utility of each, and according to risk categories high (1) to low (9) related to development level.

NAVSEA-Carderock is responsible for the research and development, testing and evaluation, in-service engineering, logistics, and fleet support of Navy surface and undersea vehicles. NAVSEA-Carderock has patented over six hundred inventions since 1980. This entire body of knowledge is being organized into categories that relate directly to the offshore industry's existing needs.

Project Description/Accomplishments

The project developed a catalog template and technology readiness index (TRL) of the Navy patents. Seven major technologies were identified and the patents cataloged, all of which have direct application to deep-water offshore exploration and production problems.

TRLs represent a checklist for monitoring the progress of a technology program and the expected impact it may have on industry use. A system of nine levels of preparedness for technologies to be transferred to industry has been established ranging from concepts to proven operations equipment. This system is being used to evaluate the patents and catalog them for further development and use.

The Blue Water Technology Consortium has been established by HARC to assist in transfer of the technologies to the energy industry. The Advisory Board has members from major and independent petroleum companies, service companies, and universities. Key objectives are to expand the catalog and demonstrate its utility to the energy industry.

CONTACTS

Roy Long
Technology Manager
Oil Exploration and Production
SCNGO
918-699-2017
roy.long@netl.doe.gov

Rhonda Jacobs
Project Manager
SCNGO
918-699-2037
rhonda.jacobs@netl.doe.gov

Richard Haut
Principal Investigator
Houston Advanced Research Center
281-364-6093
rhaut@harc.edu
www.hard.edu

COST

Total Project Value
$99,000

DOE/Non-DOE Share
$99,000/$0

CUSTOMER SERVICE

1-800-553-7681

WEBSITE

www.netl.doe.gov

Major technologies cataloged during the project include: 1) underwater acoustic data acquisition, 2) attachment methodologies for composite cylinder assembly, 3) development of acoustic and vibration attenuation composite materials, 4) an Underwater Vehicle Guidance System and methodology, 5) a Split Face Mechanical Seal System, 6) a neural network system for estimating conditions on submerged surfaces of seawater vessels and 7) fatigue testing apparatus.

The initial six-month project established the basis to develop the NAVSEA-Carderock catalog. The project has been granted additional money through Federal appropriations to expand the catalog, and continue to transfer and demonstrate the value of the projects/patents. Plans for 2005 include Technology Transfer through workshops, tours and forums to showcase technologies available.

The technology transfer program has evolved into a collaborative effort between HARC, Nicholls State University, NAVSEA-Carderock, the Department of Energy and the Blue Water Technology Consoritum.

Benefits/Impacts

The Federal government and the U. S. Navy have spent millions of dollars and decades perfecting equipment and technologies for use of naval ships and underwater operations. Patents for a number of these technologies have been identified as no longer restricted by national security issues. Turning these patents over to the general public and specifically for use in ensuring production of adequate energy resources could be of benefit to the public and the oil and gas industry. The project demonstrated that the catalog can be used to effectively assist offshore energy industry in identification and transfer of useful technologies.

Identification and ranking of over 600 U. S. Navy patents may provide high-value, high-quality, and low-cost technologies that will improve U.S. offshore oil production, particularly in deep waters where exploration and development are difficult and high cost.

Member companies of the Blue Water Technology Program.